Engineering and Testing for EMC and Safety Compliance

Certification Application Report
FCC Part 15.247 & Industry Canada RSS-210

Test Lab:	Applicant:
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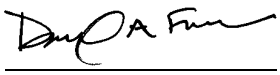
FCC ID/ IC ID:	MQOTT601-20000/ 2570A-TT601200	**Test Report Date:**	July 31, 2007
Platform:	N/A	**RTL Work Order Number:**	2007207
Model Number:	TT-601_RA WF	**RTL Quote Number:**	QRTL07-186

American National Standard Institute:	ANSI C63.4-2003: Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
FCC Classification:	DTS – Part 15 Digital Transmission System
FCC Rule Part(s):	FCC Rules Part 15.247 (10-01-05): Operation within the bands 920-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz Direct Sequence System
Industry Canada:	RSS-210, Issue 7 Low-power License-exempt Radiocommunication Devices
Digital Interface Information:	Digital Interface was found to be compliant

Frequency Range (MHz)	Output Power (W)	Frequency Tolerance	Emission Designator
2412-2462	0.060	N/A	12M6G7D

I, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this test report. No modifications were made to the equipment during testing in order to achieve compliance with these standards. Furthermore, there was no deviation from, additions to, or exclusions from, the applicable parts of FCC Part 2, FCC Part 15, FCC 97-114, ANSI C63.4, and Industry Canada RSS-210.

Signature: 

Date: July 31, 2007

Typed/Printed Name: Desmond A. Fraser

Position: President

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1 General Information

1.1 Scope

Applicable Standards:

- FCC Rules Part 15.247 (10-01-06): Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz.
- Industry Canada RSS-210 (Issue 7 September 2005): Low-power License-exempt Radiocommunication Devices

1.2 Description of EUT

Equipment Under Test	Body Worn Terminal
Model Name/Number	TT-601_RA WF
Power Supply	Battery operated
Modulation Type	DSSS
Transfer Rate	1, 2, 5.5, 11 Mbps
Frequency Range	2412 – 2462 MHz
Antenna Connector Type	Internal
Antenna Types	Internal

1.3 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170. This site has been fully described in a report and approved by the Federal Communications Commission to perform AC line conducted and radiated emissions testing (ANSI C63.4 2003).

1.4 Related Submittal(s)/Grant(s)

This is an original application for FCC certification for Vocollect, Inc. Model: TT-601_RA WF, FCC ID: MQOTT601-20000, and IC: 2570A-TT601200.

1.5 Modifications

No modifications were required for compliance.

2 Test Information

2.1 Description of Test Modes

In accordance with FCC 15.31(m), and because the EUT utilizes an operating band greater than 10 MHz, the following frequencies were tested:

Table 2-1: Channels Tested

Channel	Frequency
1	2412
6	2437
11	2462

2.2 Exercising the EUT

The EUT was tested in all three orthogonal planes in order to determine worst-case emissions. The EUT was provided with software to continuously transmit during testing. The carrier was also checked to verify that information was being transmitted. There were no deviations from the test standard(s) and/or methods. The test results reported relate only to the item tested.

2.3 Test Results Summary

Table 2-2: Test Results Summary – FCC Part 15, Subpart C (Section 15.247)

Standard	Test	Pass/Fail or N/A
FCC 15.207	AC Power Conducted Emissions	N/A
FCC 15.209	Radiated Emissions	Pass
FCC 15.247(a)(2)	6 dB Bandwidth	Pass
FCC 15.247(b)	Maximum Peak Power Output	Pass
FCC 15.247(d)	Antenna Conducted Spurious Emissions	Pass
FCC 15.247(e)	Power Spectral Density	Pass
FCC 15.247(d)	Band Edge Measurement	Pass
RSS-Gen	20 dB Bandwidth	N/A

2.4 Test System Details

The test samples were received on July 9, 2007. The FCC identifiers for all applicable equipment, plus descriptions of all cables used in the tested system, are identified in the following tables.

Table 2-3: Equipment Under Test

Part	Manufacturer	Model	Serial Number	FCC ID	Cable Description	RTL Bar Code
T2x WLAN terminal	Vocollect, Inc.	TT-601_RA WF	097255834	MQOTT601-20000	N/A	17978
T2x WLAN terminal	Vocollect, Inc.	TT-601_RA WF	097255838	MQOTT601-20000	N/A	17980
T2x WLAN terminal	Vocollect, Inc.	TT-601_RA WF	097143413	MQOTT601-20000	N/A	17994
Battery	Vocollect, Inc.	730025	07230186	N/A	N/A	17986
Headset	Vocollect, Inc	076320303	N/A	N/A	1.4 m shielded I/O	18023
Scanner	Vocollect, Inc	735089	N/A	N/A	1.4 m shielded I/O	18024

2.5 Configuration of Tested System

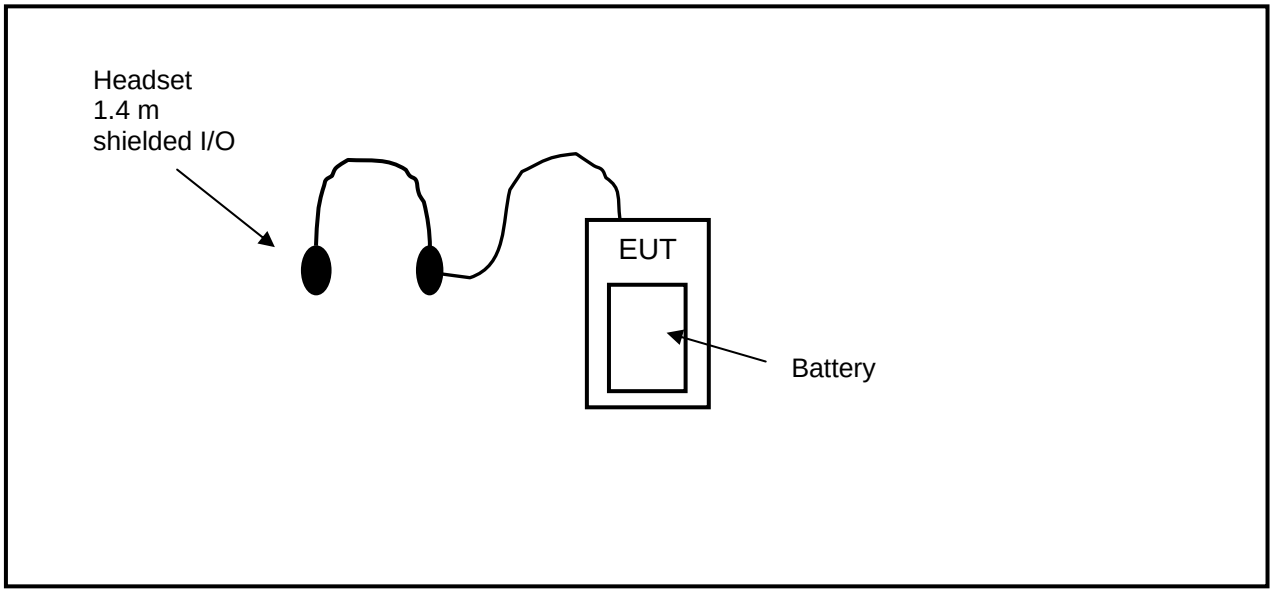


Figure 2-1: Configuration of System Under Test

3 Peak Output Power - §15.247(b)(3); RSS-210 §A8.4(4)

3.1 Power Output Test Procedure

A conducted power measurement of the EUT was taken using an Agilent 4416A EPM-P Series Power Meter with an E9323A Peak and Average Power Sensor.

Table 3-1: Power Output Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901184	Agilent Technologies	E4416A	EPM-P Power Meter, single channel	GB41050573	10/3/07
901356	Agilent Technologies	E9323A	Power Sensor	31764-264	10/3/07

3.2 Power Output Test Data

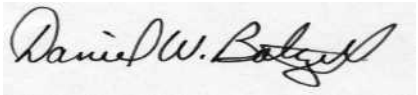
Table 3-2: Power Output Test Data

Channel	Frequency (MHz)	Peak Power Conducted Output (dBm)	Average Power Conducted Output (dBm)
1	2412	17.8	14.3
6	2437	17.7	13.9
11	2462	17.7	13.6

Notes:

- Peak power is being used to show compliance for EMC. Average power is presented per "FCC OET SAR Measurement Procedures for 802.11a/b/g Transmitters (Oct '06 Rev. 1.1)" for comparison to the SAR report.
- Vocollect firmware power setting of 75.

Test Personnel:



Daniel Baltzell		July 19, 2007
Test Engineer	Signature	Date Of Test

4 Compliance with the Band Edge – FCC §15.247(d); RSS-210 §2.2

4.1 Band Edge Test Procedure

The transmitter output was connected to its appropriate antenna. Peak (1 MHz RBW/VBW) and average (1 MHz RBW/10 Hz VBW) radiated measurements were taken with a suitable span to encompass the peak of the fundamental. A delta measurement was performed from the highest peak in the restricted band to the peak of the fundamental, and subtracted from the field strength; the result was compared to the limit in the restricted band (54 dBuV/m).

Table 4-1: Band Edge Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901413	Agilent Technologies	E4448A	Spectrum Analyzer (3 Hz – 50 GHz)	US440203416	6/13/08
900878	Rhein Tech Labs	AM3-1197-0005	3 meter antenna mast, polarizing	Outdoor Range 1	Not Required
901231	IW Microwave Products	KPS-1503-2400-KPS	High frequency RF cables	240"	5/16/08
901232	IW Microwave Products	KPS-1503-2400-KPS	High frequency RF cables	240"	5/16/08
901235	IW Microwave Products	KPS-1503-360-KPS	High frequency RF cables	36"	5/16/08
901242	Rhein Tech Labs	WRT-000-0003	Wood rotating table	N/A	Not Required
900772	EMCO	3161-02	Horn Antenna (2 - 4 GHz)	9804-1044	6/15/10

4.2 Restricted Band Edge Test Results

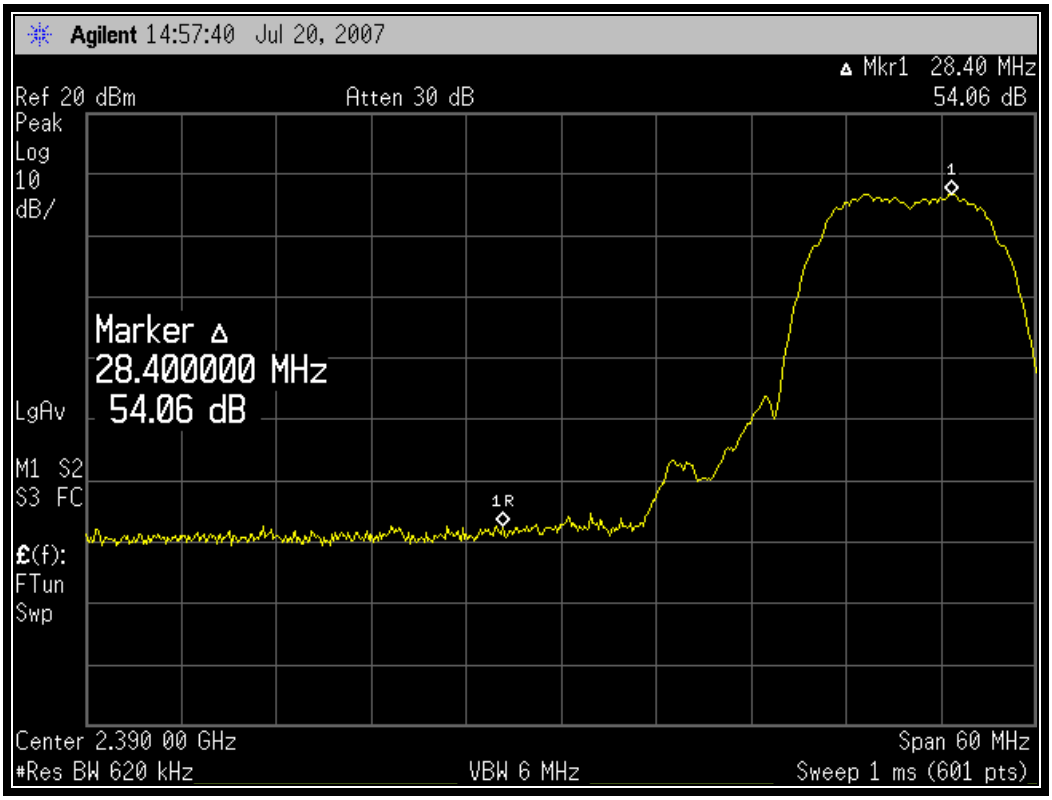
4.2.1 Calculation of Lower Band Edge

98.2 dBuV/m is the field strength measurement, from which the delta measurement of 54.1 dB is subtracted (reference plots), resulting in a level of 44.1 dB. This level has a margin of 9.9 dB below the limit of 54 dBuV/m.

Calculation: 98.2 dBuV/m – 54.1 dB – 54 dBuV/m = -9.9 dB

Peak Field Strength of Lower Band Edge (1 MHz RBW/1 MHz VBW) = 102.2 dBuV/m
Average Field Strength of Lower Band Edge (1 MHz RBW/10 Hz VBW) = 98.2 dBuV/m
Delta measurement = 54.1 dB

Plot 4-1: Lower Band Edge: Average Measurement Channel 1 (TX Frequency: 2412 MHz)



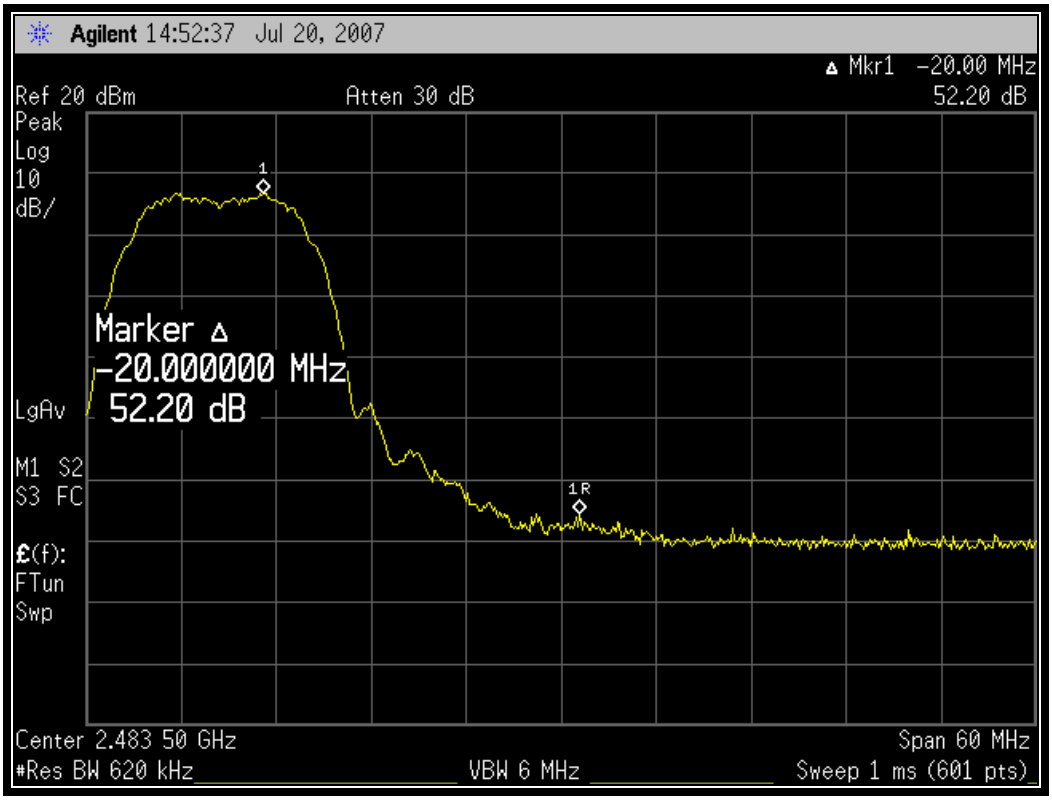
4.2.2 Calculation of Upper Band Edge

85.8 dBuV/m is the field strength measurement, from which the delta measurement of 52.2 dB is subtracted (reference plots), resulting in a level of 33.6 dB. This level has a margin of 20.4 dB below the limit of 54 dBuV/m.

Calculation: 85.8 dBuV/m – 52.2 dB – 54 dBuV/m = -20.4 dB

Peak Field Strength of Upper Band Edge (1 MHz RBW/1 MHz VBW) = 89.1 dBuV/m
Average Field Strength of Upper Band Edge (1 MHz RBW/10 Hz VBW) = 85.8 dBuV/m
Delta measurement = 52.2 dB

Plot 4-2: Upper Band Edge: Average Measurement Channel 11 (TX Frequency: 2462 MHz)



Test Personnel:

Daniel Baltzell	Signature	July 20, 2007
Test Engineer		Date Of Test

5 Antenna Conducted Spurious Emissions - §15.247(d); RSS-210 RSS-Gen

5.1 Antenna Conducted Spurious Emissions Test Procedures

Antenna spurious emissions per FCC 15.247(c) were measured from the EUT antenna port using a 50 ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, and the video bandwidth set at 100 kHz. The modulated carrier was identified at the following frequencies: 2412 MHz, 2437 MHz and 2462 MHz.

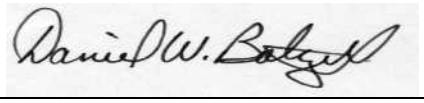
5.2 Antenna Conducted Spurious Emissions Test Results

No harmonics or spurs were found within 20 dB (note that we are reporting power as peak) of the limit from the carrier to the 10th harmonic of the carrier frequency. Per FCC 15.31(o), no data is being reported.

Table 5-1: Antenna Conducted Spurious Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901413	Agilent Technologies	E4448A	Spectrum Analyzer (3 Hz – 50 GHz)	US440203416	6/13/08

Test Personnel:

Daniel Baltzell		July 20, 2007
Test Engineer	Signature	Date Of Test

6 6 dB Bandwidth - §15.247(a)(2); RSS-210 §A8.2(a)

6.1 6 dB Bandwidth Test Procedure – Minimum 6 dB Bandwidth

The minimum 6 dB bandwidths per FCC 15.247(a)(2) were measured using a 50 ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, and the video bandwidth set at 300 Hz. The device was modulated. The minimum 6 dB bandwidths are presented below.

Table 6-1: 6 dB Bandwidth Test Equipment

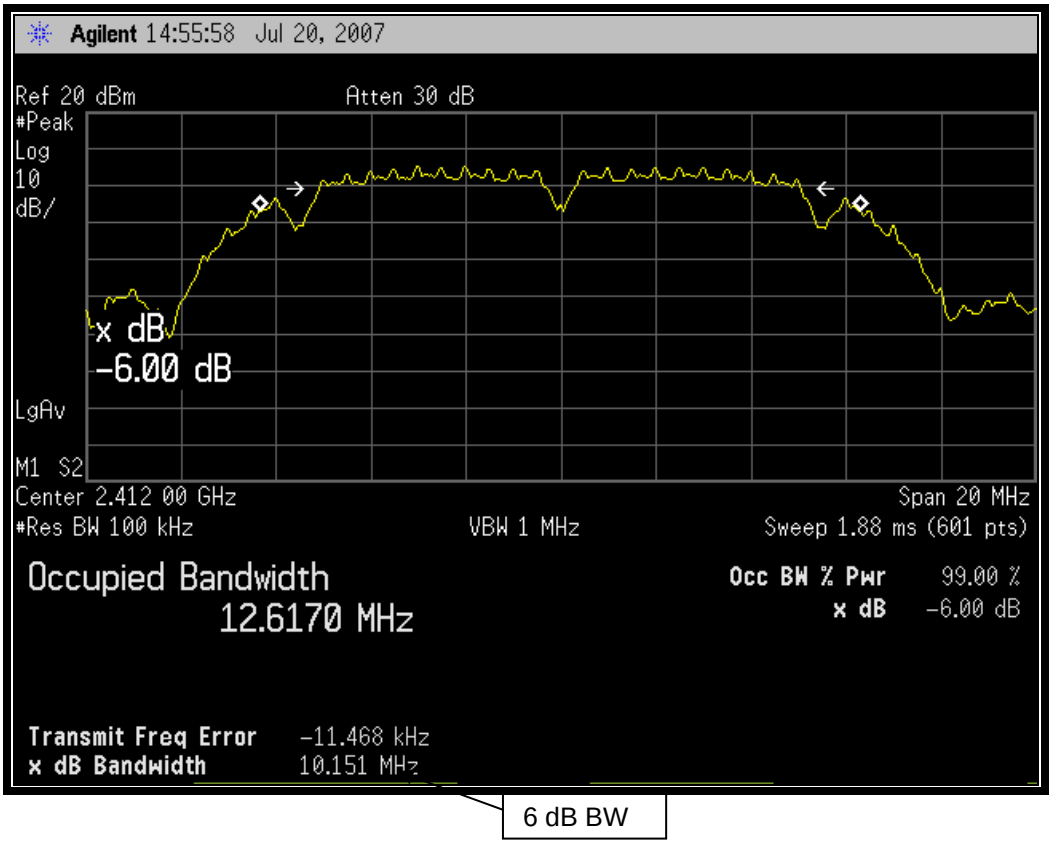
RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901413	Agilent Technologies	E4448A	Spectrum Analyzer (3 Hz – 50 GHz)	US440203416	6/13/08

6.2 6 db Bandwidth Test Results

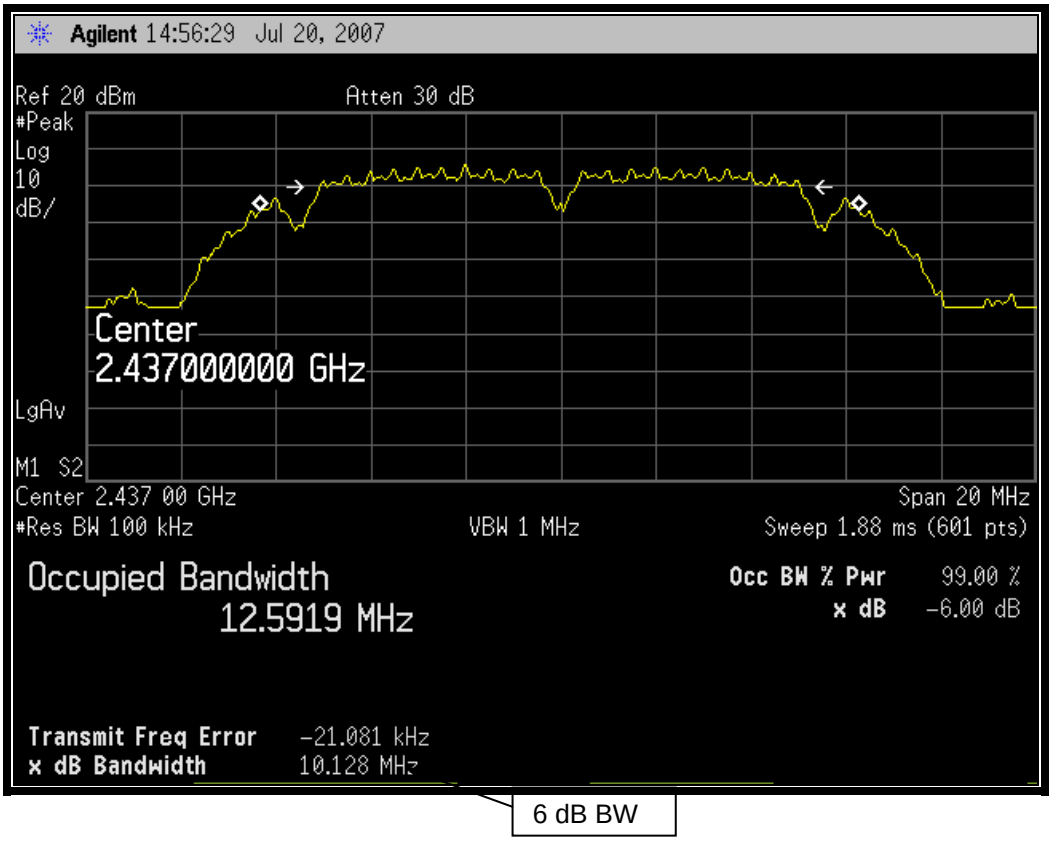
Table 6-2: 6 db Bandwidth Test Data

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/Fail
1	2412	10.2	0.5	Pass
6	2437	10.1	0.5	Pass
11	2462	10.1	0.5	Pass

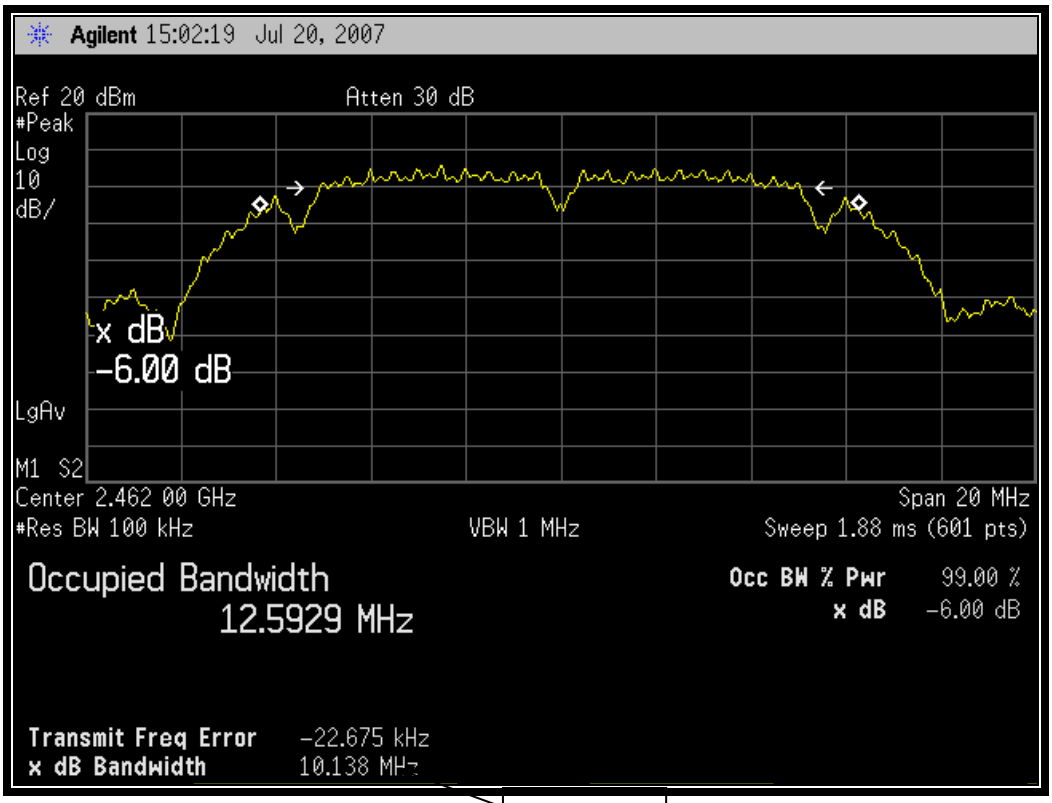
Plot 6-1: 6 dB Bandwidth Channel 1 (TX Frequency: 2412 MHz)



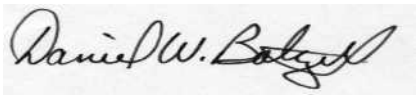
Plot 6-2: 6 dB Bandwidth Channel 6 (TX Frequency: 2437 MHz)



Plot 6-3: 6 dB Bandwidth Channel 11 (TX Frequency: 2462 MHz)



Test Personnel:

Daniel Baltzell		July 20, 2007
Test Engineer	Signature	Date Of Tests

7 Power Spectral Density - §15.247(e); RSS-210 §A8.2(b)

7.1 Power Spectral Density Test Procedure

The power spectral density per FCC 15.247(d) was measured using a 50 ohm spectrum analyzer with the resolution bandwidth set at 3 kHz, the video bandwidth set at 30 kHz, and the sweep time set at 500 seconds. The spectral lines were resolved for the modulated carriers at 2.412 GHz, 2.437 GHz, and 2.462 GHz respectively. These levels are below the +8 dBm limit. See the power spectral density table and plots.

Table 7-1: Power Spectral Density Test Equipment

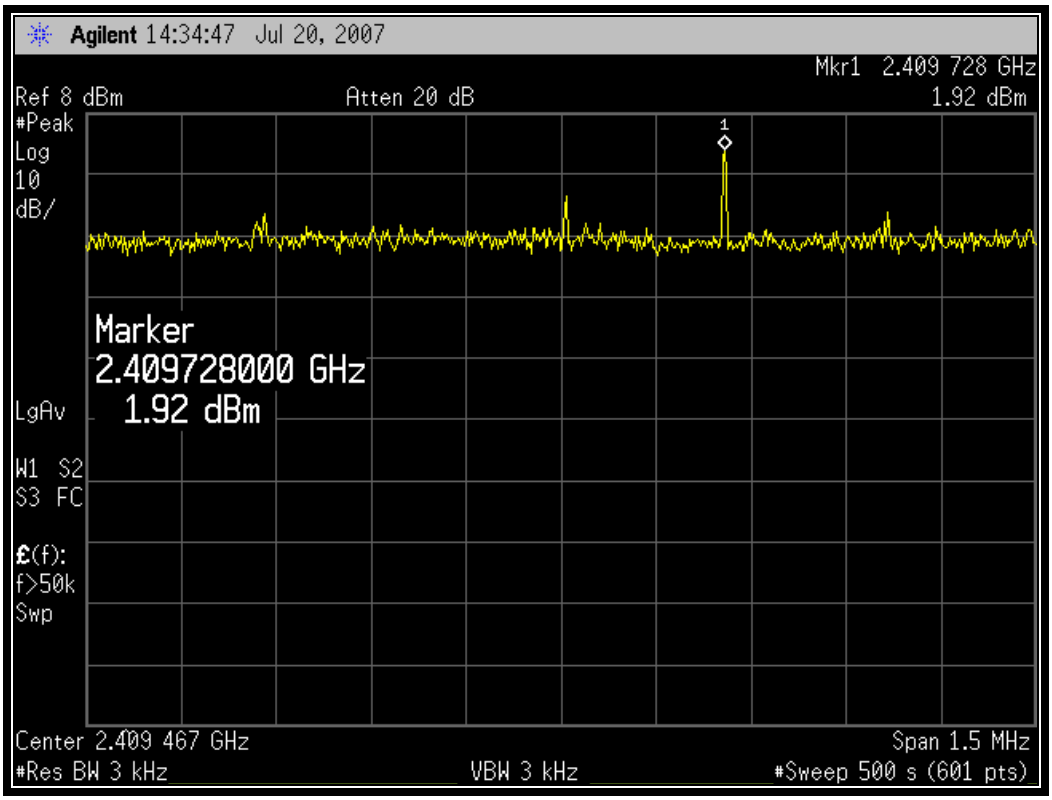
RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901413	Agilent Technologies	E4448A	Spectrum Analyzer (3 Hz – 50 GHz)	US440203416	6/13/08

7.2 Power Spectral Density Test Data

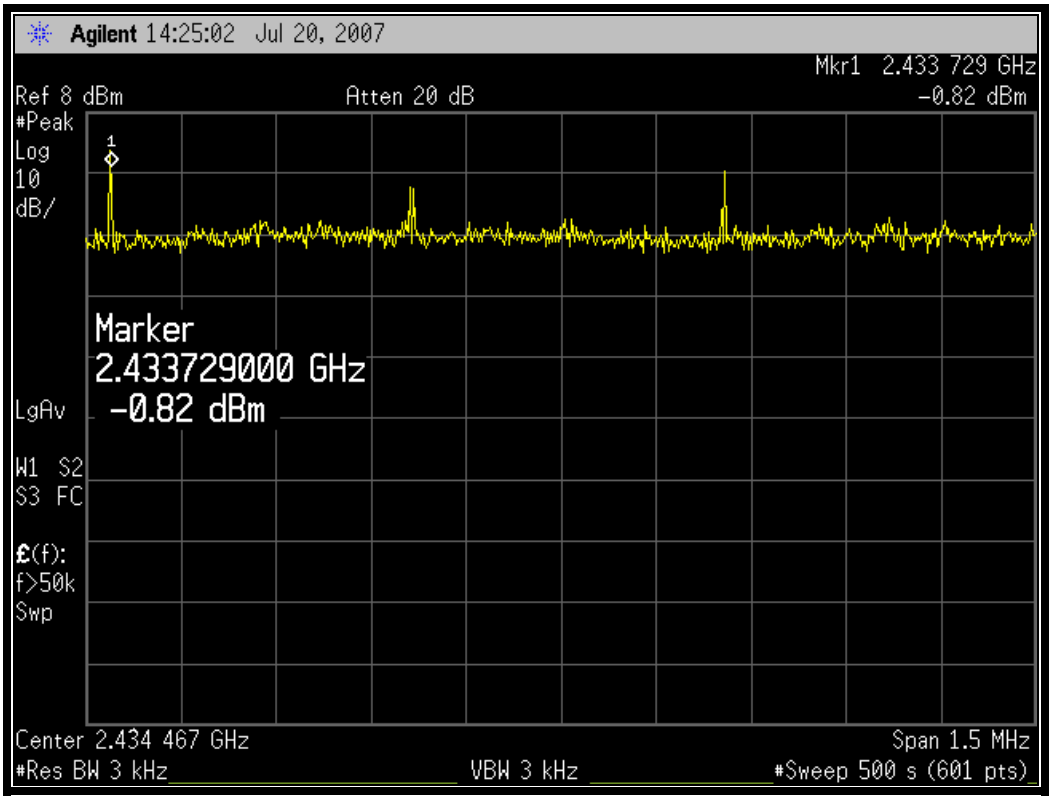
Table 7-2: Power Spectral Density Test Data

Channel	Frequency (MHz)	RF Power Level (dBm)	Maximum Limit +8dBm	Pass/Fail
1	2412	1.92	8	Pass
6	2437	-0.82	8	Pass
11	2462	-0.04	8	Pass

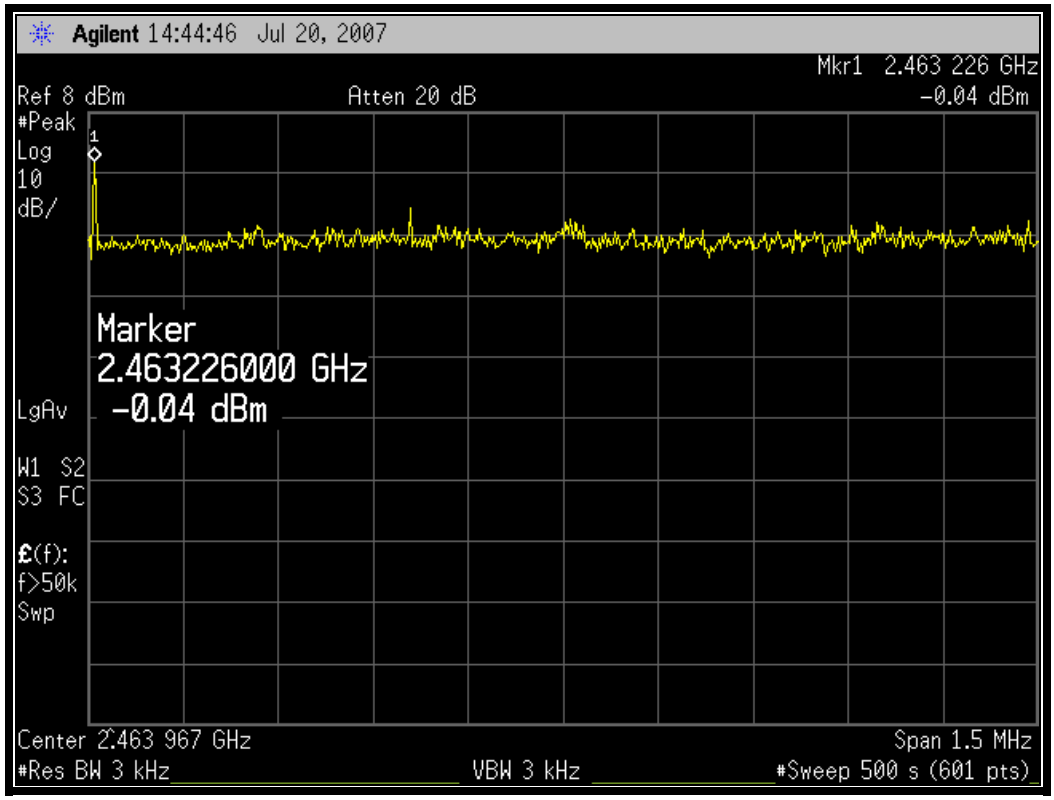
Plot 7-1: Power Spectral Density: Channel 1 (2412 MHz)



Plot 7-2: Power Spectral Density: Channel 6 (2437 MHz)



Plot 7-3: Power Spectral Density: Channel 11 (2462 MHz)



Test Personnel:

Daniel Baltzell	Daniel W. Baltzell	July 20, 2007
Test Engineer	Signature	Date Of Tests

8 Conducted Emissions Measurement Limits – FCC §15.207; RSS-Gen

8.1 Limits of Conducted Emissions Measurement

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

8.2 Site and Test Description

The power line conducted emissions measurements were performed in a Series 81 type shielded enclosure manufactured by Rayproof. The EUT was assembled on a wooden table 80 centimeters high. Power was fed to the EUT through a 50 ohm/50 microhenry Line Impedance Stabilization Network (LISN). The EUT LISN was fed power through an A.C. filter box on the outside of the shielded enclosure. The filter box and EUT LISN housing are bonded to the ground plane of the shielded enclosure. A second LISN, the peripheral LISN, provides isolation for the EUT test peripherals. This peripheral LISN was also fed A.C. power. A metal power outlet box, which is bonded to the ground plane and electrically connected to the peripheral LISN, powers the EUT host peripherals.

The spectrum analyzer was connected to the A.C. line through an isolation transformer. The 50 ohm output of the EUT LISN was connected to the spectrum analyzer input through a Solar 100 kHz high-pass filter. The filter is used to prevent overload of the spectrum analyzer from noise below 100 kHz. Conducted emission levels were measured on each current-carrying line with the spectrum analyzer operating in the CISPR quasi-peak mode (or peak mode if applicable).

The analyzer's 6 dB bandwidth was set to 9 kHz. Video filter less than 10 times the resolution bandwidth is not used. Average measurements are performed in linear mode using a 10 kHz resolution bandwidth, a 1 Hz video bandwidth, and by increasing the sweep time in order to obtain a calibrated measurement. The emission spectrum was scanned from 150 kHz to 30 MHz. The highest emission amplitudes relative to the appropriate limits were measured and have been recorded.

Table 8-1: Conducted Emissions Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Date
901215	Hewlett Packard	8596EM	Spectrum Analyzer (9 kHz-12.8 GHz)	3826A00144	10/16/07
901084	AFJ International	LS16	16A LISN	16010020082	3/28/08

8.3 Conducted Emissions Test Data

Table 8-2: Conducted Emissions Test Data – Neutral - TX Mode

Temperature: 74°F Humidity: 36%									
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	FCC 15.207 QP Limit (dBuV)	FCC 15.207 QP Margin (dBuV)	FCC 15.207 AV Limit (dBuV)	FCC 15.207 AV Margin (dBuV)	Pass/ Fail
0.220	Pk	41.4	0.2	41.6	62.8	-21.2	52.8	-11.2	Pass
0.263	Pk	41.2	0.2	41.4	61.3	-19.9	51.3	-9.9	Pass
0.370	Qp	47.0	0.2	47.2	58.5	-11.3	48.5	-1.3	Pass
0.479	Pk	34.9	0.2	35.1	56.4	-21.3	46.4	-11.3	Pass
0.583	Pk	44.2	0.3	44.5	56.0	-11.5	46.0	-1.5	Pass
17.385	Av	44.0	2.3	46.3	60.0	-13.7	50.0	-3.7	Pass

Table 8-3: Conducted Emissions Test Data – Hot – TX Mode

Temperature: 74°F Humidity: 36%									
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	FCC 15.207 QP Limit (dBuV)	FCC 15.207 QP Margin (dBuV)	FCC 15.207 AV Limit (dBuV)	FCC 15.207 AV Margin (dBuV)	Pass/ Fail
0.264	Pk	33.6	0.2	33.8	61.3	-27.5	51.3	-17.5	Pass
0.264	Pk	33.6	0.2	33.8	61.3	-27.5	51.3	-17.5	Pass
0.369	Pk	45.9	0.2	46.1	58.5	-12.4	48.5	-2.4	Pass
0.474	Pk	34.5	0.2	34.7	56.4	-21.7	46.4	-11.7	Pass
0.586	Pk	42.4	0.3	42.7	56.0	-13.3	46.0	-3.3	Pass
1.715	Pk	42.5	0.6	43.1	56.0	-12.9	46.0	-2.9	Pass

Test Personnel:

Daniel W. Baltzell		July 20, 2007
Test Engineer	Signature	Date Of Test

9 Radiated Emissions - §15.209; RSS-210 §A8.5 and RSS-Gen

9.1 Limits of Radiated Emissions Measurement

Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009-0.490	2400/f (kHz)	300
0.490-1.705	2400/f (kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

As shown in 15.35(b), for frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any circumstances of modulation.

9.2 Radiated Emissions Measurement Test Procedure

Before final measurements of radiated emissions were made on the open-field three/ten meter range, the EUT was scanned indoors at one and three meter distances. This was done in order to determine its emissions spectrum signature. The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. This process was repeated during final radiated emissions measurements on the open-field range, at each frequency, in order to ensure that maximum emission amplitudes were attained.

Final radiated emissions measurements were made on the three/ten-meter, open-field test site. The EUT was placed on a nonconductive turntable 0.8 meters above the ground plane. The spectrum was examined from 9 kHz to the 10^{th} harmonic of the highest fundamental transmitter frequency (24.8 GHz).

At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the emission's maximum level. Measurements were taken using both horizontal and vertical antenna polarizations. For frequencies between 30 and 1000 MHz, the spectrum analyzer's 6 dB bandwidth was set to 120 kHz, and the analyzer was operated in the CISPR quasi-peak detection mode. For emissions above 1000 MHz, emissions are measured using the average detector function with a minimum resolution bandwidth of 1 MHz. No video filter less than 10 times the resolution bandwidth was used. The highest emission amplitudes relative to the appropriate limit were measured and recorded in this report.

Table 9-1: Radiated Emissions Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900151	Rohde and Schwarz	HFH2-Z2	Antenna (Loop antenna, (9 kHz - 30 MHz)	827525/019	9/15/09
901020	Hewlett Packard	8564E	Portable Spectrum Analyzer (9 kHz - 40 GHz)	3943A01719	10/28/07
900905	Rhein Tech Labs	PR-1040	OATS 1 Preamplifier 40 dB (30 MHz – 2 GHz)	1006	5/16/08
900878	Rhein Tech Labs	AM3-1197-0005	3 meter antenna mast, polarizing	Outdoor Range 1	Not Required
901231	IW Microwave Products	KPS-1503-2400-KPS	High frequency RF cables	240"	5/16/08
901232	IW Microwave Products	KPS-1503-2400-KPS	High frequency RF cables	240"	5/16/08
901235	IW Microwave Products	KPS-1503-360-KPS	High frequency RF cables	36"	5/16/08
901242	Rhein Tech Labs	WRT-000-0003	Wood rotating table	N/A	Not Required
900772	EMCO	3161-02	Horn Antenna (2 - 4 GHz)	9804-1044	6/14/10
900321	EMCO	3161-03	Horn Antennas (4 - 8,2 GHz)	9508-1020	6/14/10
900323	EMCO	3160-7	Horn Antennas (8,2 - 12,4 GHz)	9605-1054	6/14/10
900356	EMCO	3160-08	Horn Antenna (12.4 - 18 GHz)	9607-1044	6/14/10
900325	EMCO	3160-9	Horn Antennas (18 - 26.5 GHz)	9605-1051	6/14/10
900392	Hewlett Packard	1197OK	Harmonic Mixer (18 – 26.5 GH)z	3525A00159	11/27/07
900931	Hewlett Packard	8566B	Spectrum Analyzer (100 Hz - 22 GHz)	3138A07771	5/22/08
900930	Hewlett Packard	85662A	Spectrum Analyzer Display Section	3144A20839	5/22/08
900889	Hewlett Packard	85685A	RF Preselector (20 Hz - 2 GHz)	3146A01309	5/22/08

9.3 Radiated Emissions Test Results

9.3.1 Radiated Emissions – Digital Test Data

Table 9-2: Digital Radiated Emissions

Temperature: 74°F Humidity: 43%										
Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pass/ Fail
93.701	Qp	H	0	1.0	26.3	-19.3	7.0	43.5	-36.5	Pass
158.700	Qp	H	0	1.0	39.9	-18.3	21.6	43.5	-21.9	Pass
175.995	Qp	H	180	1.0	38.9	-18.5	20.4	43.5	-23.1	Pass
245.730	Qp	H	180	1.0	32.8	-15.3	17.5	46.0	-28.5	Pass
282.591	Qp	H	0	1.0	34.8	-14.1	20.7	46.0	-25.3	Pass
434.342	Qp	H	0	1.0	29.4	-9.6	19.8	46.0	-26.2	Pass

9.3.2 Radiated Emissions Harmonics/Spurious Test Data

Table 9-3: Radiated Emissions Harmonics/Spurious Channel 1 (TX Frequency: 2412 MHz)

Emission Frequency (MHz)	Peak Analyzer Reading (dBuV) (1 MHz RBW/VBW)	Average Analyzer Reading (dBuV) (1 MHz RBW/ 10 Hz VBW)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
4824.0	44.7	35.0	17.5	52.5	54.0	-1.5
7236.0	42.5	30.1	15.3	45.4	78.2	-32.8
9648.0	40.9	30.2	18.3	48.5	78.2	-29.7
12060.0	32.5	21.5	19.2	40.7	54.0	-13.3
14472.0	41.4	28.7	23.4	52.1	54.0	-1.9
16884.0	40.8	29.0	24.4	53.4	78.2	-24.8

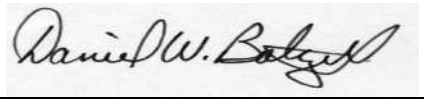
Table 9-4: Radiated Emissions Harmonics/Spurious Channel 6 (TX Frequency: 2437 MHz)

Emission Frequency (MHz)	Peak Analyzer Reading (dBuV) (1 MHz RBW/VBW)	Average Analyzer Reading (dBuV) (1 MHz RBW/ 10 Hz VBW)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
4874.0	44.2	33.7	17.7	51.4	54.0	-2.6
7311.0	40.7	28.8	14.7	43.5	54.0	-10.5
9748.0	41.7	30.5	18.1	48.6	54.0	-5.4
12185.0	34.5	22.6	19.7	42.3	54.0	-11.7
14622.0	40.5	28.8	24.4	53.2	63.8	-10.6
17059.0	40.9	29.4	25.1	54.5	63.8	-9.3

Table 9-5: Radiated Emissions Harmonics/Spurious Channel 11 (TX Frequency: 2462 MHz)

Emission Frequency (MHz)	Peak Analyzer Reading (dBuV) (1 MHz RBW/VBW)	Average Analyzer Reading (dBuV) (1 MHz RBW/ 10 Hz VBW)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
4924.0	43.8	33.3	17.8	51.1	54.0	-2.9
7386.0	42.1	30.0	15.3	45.3	54.0	-8.7
9848.0	43.0	31.1	18.2	49.3	65.8	-16.5
12310.0	38.0	25.6	19.1	44.7	54.0	-9.3
14772.0	40.7	29.3	24.4	53.7	65.8	-12.1
17234.0	42.4	30.4	22.7	53.1	65.8	-12.7

Test Personnel:



Daniel Baltzell		July 20, 2007
Test Engineer	Signature	Date Of Test

10 99% Bandwidth - RSS-Gen §4.6.1

Table 10-1: 99% Bandwidth Test Equipment

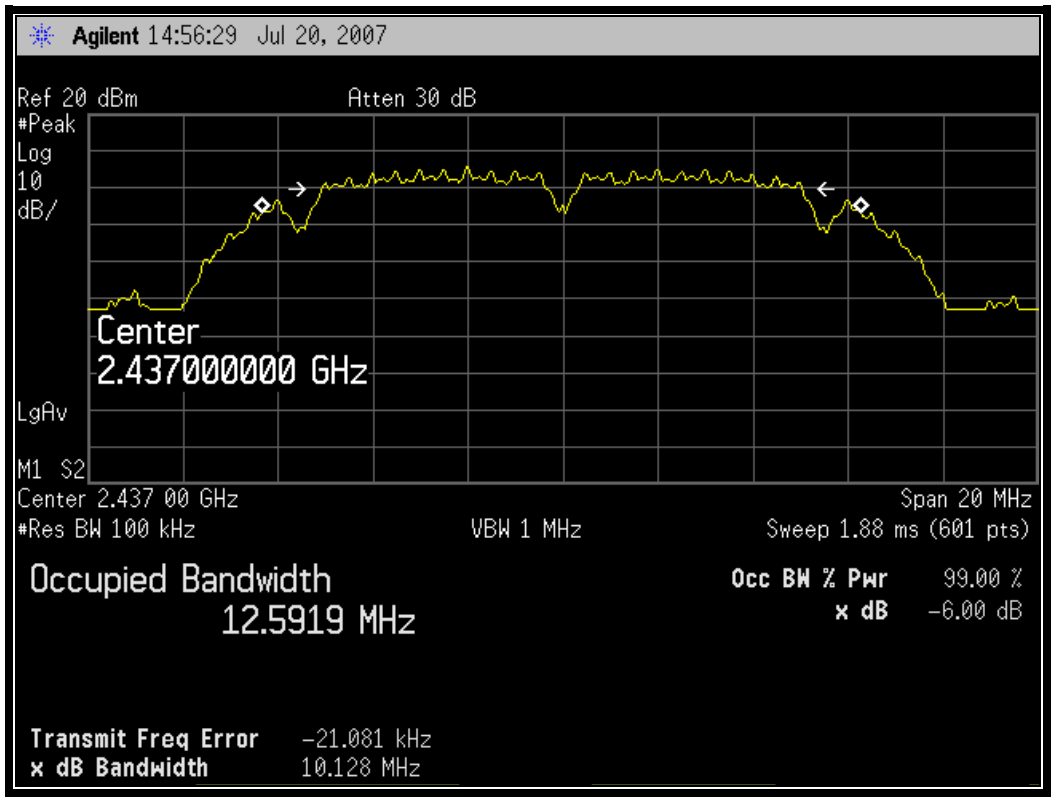
RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901413	Agilent Technologies	E4448A	Spectrum Analyzer (3 Hz – 50 GHz)	US440203416	6/13/08

Table 10-2: 99% Bandwidth Test Data

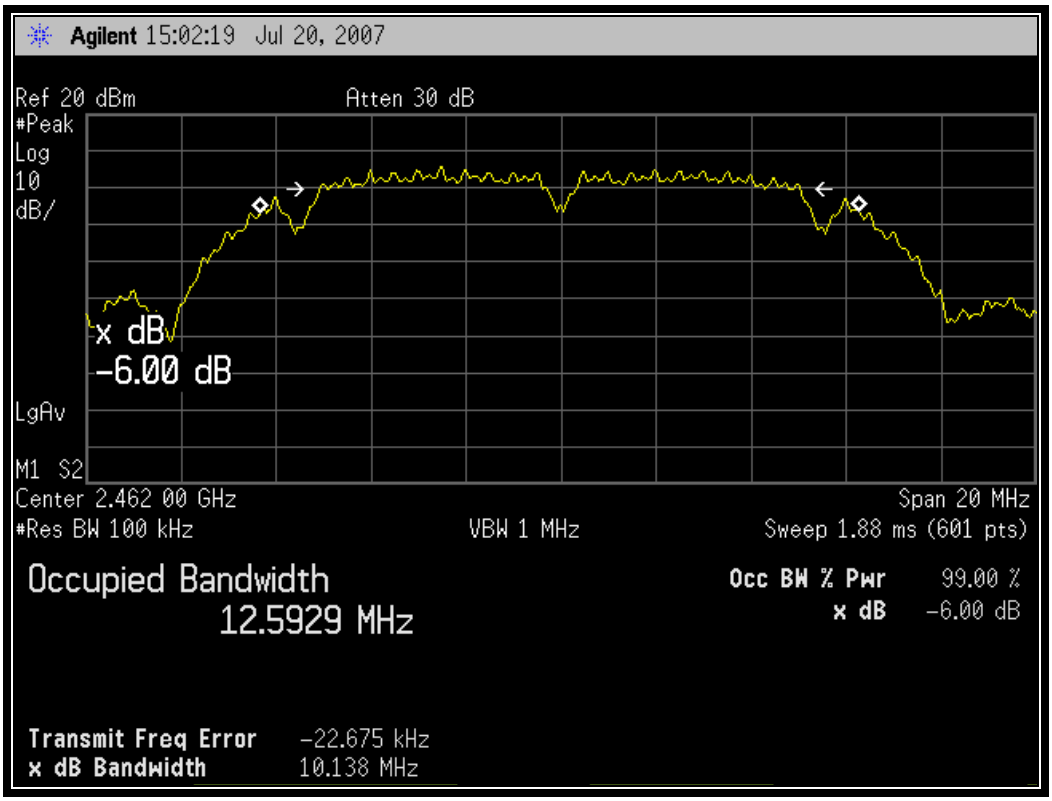
Channel	Frequency (MHz)	99% Bandwidth (MHz)
1	2412	12.6
6	2437	12.6
11	2462	12.6

Plot 10-1: 99% Bandwidth Channel 1 (TX Frequency: 2412 MHz)

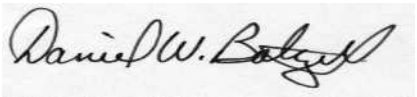
Plot 10-2: 99% Bandwidth Channel 6 (TX Frequency: 2437 MHz)



Plot 10-3: 99% Bandwidth Channel 11 (TX Frequency: 2462 MHz)



Test Personnel:

Daniel Baltzell		July 20, 2007
Test Engineer	Signature	Date Of Tests

11 Conclusion

The data in this measurement report shows that the EUT as tested, Vocollect, Inc. Model # TT-601_RA WF, FCC ID: MQOTT601-20000, IC: 2570A-TT601200, complies with all the applicable requirements of Parts 2 and 15 of the FCC Rules and Regulations, and Industry Canada RSS-210 and RSS Gen.